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BROOKS KUSHMAN P.C./FGTL 1000 TOWN CENTER 22ND FLOOR SOUTHFIELD, MI 48075-1238			SCHWARTZ, CHRISTOPHER P	
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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/708,516
Filing Date: March 09, 2004
Appellant(s): CROMBEZ ET AL.

Marc F. Malooley
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed May 11, 2006 appealing from the Office action mailed December 13, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,615,933	Kidston et al.	4-1997
6,244,674	Kuno et al.	6-2001
6,309,031	Crombez et al.	10-2001
6,325,470	Schneider	12-2001
US 20020180266	Hara et al.	12-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-5,13-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider '470 in view of US publication to Hara et al. '266.

Regarding claims 1,13,18 Schneider discloses a combined friction and regenerative braking system that can apportion the regenerative braking based upon predetermined vehicle conditions such as imminent wheel lock-up. Note the microprocessor based control units at 38,52. The device also includes front to rear brake proportioning control of the overall braking forces. Please refer to the discussion in column 5 in its entirety.

Schneider lacks a specific discussion of reducing the regenerative braking torque to zero, although presumably this happens to avoid any uncomfortable sensation to the driver upon excessive deceleration, such as when the vehicle enters ABS mode.

The reference to Hara et al. is more clear in this regard. See the abstract, the discussion in paragraphs 0007, 0008, 0077 in their entirety. Applicants should however review this entire document for the "vehicle conditions" discussed therein.

As broadly claimed by applicant the first and second vehicle conditions and first and second predetermined values could just about be anything under the sun with regard to the vehicle driving condition. This reasoning is somewhat substantiated in applicants dependent claims. For instance vehicle deceleration may be determined from vehicle speed. The vehicle speed may be determined from wheel speed. Pedal position or rate of depression thereof may be used to estimate braking force applied to the wheels, which may in turn be used to determine brake torque etc.

Such "conditions" and "values" as broadly claimed are notoriously well known in the art. The references to Schneider and Hara et al. generally teach this throughout their disclosures even if not discussed with any degree of particularity. Further the prior art of record cited but not relied upon also discuss these notoriously well known limitations. Applicant should carefully review the prior art cited for a teaching of the general knowledge available to the ordinary skilled worker in the art.

It would have been obvious to the ordinary skilled worker in the art at the time of the invention to have incorporated the teachings of the reduction of regenerative braking force as taught by Hara into Schneider to improve overall driveability of the vehicle.

As broadly claimed the requirements of claims 2-5,14-17,19,20 are fairly suggested by the combined references above.

4. Claims 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider '470 in view of Hara et al. as applied to claims 6 above, and further in view of Crombez et al., Kuno et al., or Kidston et al..

Regarding claims 6, Schneider '470 in view of Hara et al., lack disclosing using predetermined "torque curves" to control the regenerative braking torque.

However such ideas, as broadly claimed, are well known in the art. Please see Crombez et al. col. 5 lines 10-25, Kidston et al. col 5 lines 15-52, and Kuno col. 7 lines 49+ over to col. 9.

One having ordinary skill in the art at the time of the invention would have found it obvious to have modified Schneider et al., as modified, with look up tables, torque maps or torque curves to adjust the regenerative braking torque to predetermined requirements such as rate of deceleration, level of battery charge, imminent activation of ABS or stability control modes as such a method would merely amount to an alternate equivalent method to that of Schneider et al., as modified by Hara.

Regarding claims 7-12 these limitations, as broadly claimed, are fairly suggested by the references above.

(10) Response to Argument

Applicant's arguments filed with the Brief have been fully considered but they are not persuasive. Appellant's state in their remarks "Nothing in the combination of

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Schneider or Hara et al. teaches or even suggests all of the claim limitations of amended claim 1. [That] claim 1 recites the determination of two vehicle conditions, the determination of a predetermined value which corresponds to one of the vehicle conditions, and the step of reducing regenerative braking to zero beginning when the second vehicle condition reaches the predetermine value". Claims 13 and 18 are similar in undue breadth and scope.

As stated previously from a cursory reading of the prior art of record it is unclear to the examiner how applicant's representatives can come up with their analysis.

The references to Scheider and Hara clearly teach applicant's claimed limitations given the undue breadth of their claims. Such limitations as

- 1)"determining a first vehicle condition" upon braking,
- 2)"determining a first predetermined value corresponding to the first vehicle condition",
- 3)"determining a second vehicle condition and reducing regenerative braking torque to zero beginning when the second vehicle condition (3) reaches the first predetermined value" (2) are so broad in scope, and well known in the art, that they are not specifically mentioned in prior art patents because they are inherent. That is, it is inherent for a hybrid vehicle brake control system to automatically perform a function in response to some predetermined vehicle criteria; such as when actual values of one parameter or another (i.e. wheel speed, vehicle speed, vehicle deceleration, wheel slip, pedal force, etc.) approach, meet, or exceed predetermined target values. Applicant's

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own claimed limitations in claims 2,4 and/or 5 should be a clue to this regard. But see Schneider col. 4 lines 11-26.

The reference to Schneider teaches a combined friction and regenerative braking system that includes front to rear apportioning control. Note the method of operating the regenerative and friction braking apparatus for the vehicle outlined in column 2 lines 16-35. Also, Schneider is obviously capable of measuring the vehicle speed, and therefore vehicle deceleration, with wheel speed sensors 40,42,44 and 46. See the discussion in col. 5 lines 31-43. Here Schneider states that “regenerative braking is disabled or reduced in accordance with the ABS mode entered”. Therefore it should be readily apparent that a “first vehicle condition or predetermined value”, as broadly claimed by applicants (such as any of the notoriously well known parameters listed in applicant’s claims 2,4 and 5—and inherent in Schneider as stated in col. 4 lines 17-20), must reach “a second vehicle condition” when the vehicle enters ABS mode (inherently an excessive amount of deceleration in Schneider) to “reduce or disable” the regenerative braking mode. Notwithstanding this argument however, note the discussion of the motor limitations, and voltages of the battery (i.e. vehicle conditions), that may also limit the regenerative braking torque.

The reference to Hara et al. is relied upon for a more specific disclosure of reducing the regenerative braking torque to zero based upon other well known certain vehicle “conditions” and “values”.

These references clearly teach, in combination, that in vehicles equipped with hybrid braking systems (i.e. friction and regenerative) it is well known to reduce the

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amount of regenerative braking, possibly to zero, simply dependent upon the vehicle reaching certain, or predetermined, operating conditions or values. It would be well within the expertise of the ordinary skilled worker in the art to adjust or change said vehicle conditions simply dependent upon the braking characteristics desired—perhaps to maximize the amount of regenerative power in the vehicle, to adjust the front-rear apportioning control with vehicles having different centers of gravity, or simply to reduce uncomfortable braking sensations to the driver (such as jerking movements).

Appellant's are encouraged (again) to review all of the prior art references cited in the application as they have also been relied upon to establish notoriously well known concepts in the art as related to applicant's claimed limitations.

(11) Related Proceeding(s) Appendix



No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Christopher P. Schwartz

Conferees:

Jim McClellon 
CS 

Robert Swartz 